Name _____ Date _____ Math # _____

# OPERATIONS WITH DECIMALS

## ARITHMETIC OPERATIONS WITH DECIMALS

**ADDING AND SUBTRACTING DECIMALS:** Write the problem in column form with the decimal points in a vertical column. Write in zeros so that all decimal parts of the number have the same number of digits. Add or subtract as with whole numbers. Place the decimal point in the answer aligned with those above.

**MULTIPLYING DECIMALS:** Multiply as with whole numbers. In the product, the number of decimal places is equal to the total number of decimal places in the factors (numbers you multiplied). Sometimes zeros need to be added to place the decimal point.

**DIVIDING DECIMALS:** When dividing a decimal by a whole number, place the decimal point in the answer space directly above the decimal point in the number being divided. Divide as with whole numbers. Sometimes it is necessary to add zeros to the number being divided to complete the division.

When dividing decimals or whole numbers by a decimal, the divisor must be multiplied by a power of ten to make it a whole number. The dividend must be multiplied by the same power of ten. Then divide following the same rules for division by a whole number.

For additional information, see the Math Notes boxes in Lesson 5.2.2 of the *Core Connections, Course 1* text, or Lessons 3.3.2 and 3.3.3 of the *Core Connections, Course 2* text. For additional examples and practice, see the *Core Connections, Course 1* Checkpoint 2, Checkpoint 7A, and Checkpoint 8B materials.

### Example 1

Add 47.37, 28.9, 14.56, and 7.8.

$$\begin{array}{r} 47.37 \\ 28.\mathbf{9}0 \\ 14.56 \\ +\ 7.\mathbf{8}0 \\ \hline 98.63 \end{array}$$

### Example 2

Subtract 198.76 from 473.2.

$$\begin{array}{r} 473.2\mathbf{0} \\ -\ 198.76 \\ \hline 274.44 \end{array}$$

### Example 3

Multiply 27.32 by 14.53.

$$\begin{array}{r} 27.32 \quad (2 \text{ decimal places}) \\ \times\ 14.53 \quad (2 \text{ decimal places}) \\ \hline 8196 \\ 13660 \\ 10928 \\ 2732 \\ \hline 396.9596 \quad (4 \text{ decimal places}) \end{array}$$

### Example 4

Multiply 0.37 by 0.0004.

$$\begin{array}{r} 0.37 \quad (2 \text{ decimal places}) \\ \times\ 0.0004 \quad (4 \text{ decimal places}) \\ \hline \mathbf{0.000}148 \quad (6 \text{ decimal places}) \end{array}$$

### Example 5

Divide 32.4 by 8.

$$\begin{array}{r} 4.05 \\ 8\overline{)\,32.4\mathbf{0}} \\ \underline{32} \\ 0\,40 \\ \underline{40} \\ 0 \end{array}$$

### Example 6

Divide 27.42 by 1.2. First multiply each number by $10^1$ or 10.

$$1.2\overline{)27.42} \Rightarrow 12\overline{)274.2} \Rightarrow 12\overline{)274.20}$$

$$\begin{array}{r} 22.85 \\ 24 \\ \hline 34 \\ 24 \\ \hline 102 \\ 96 \\ \hline 60 \\ 60 \\ \hline 0 \end{array}$$

Please copy and solve the following questions on a **separate** piece of paper. Show ALL your work. Graph paper might help you keep numbers aligned.

1. $4.7 + 7.9$

2. $3.93 + 2.82$

4. $58.3 + 72.84$

5. $4.73 + 692$

26. $8.021 - 4.37$

27. $14 - 7.431$

29. $10 - 4.652$

30. $18 - 9.043$

47. $3.07 \cdot 5.4$

48. $4.023 \cdot 3.02$

50. $0.007 \cdot 0.0004$

51. $0.235 \cdot 0.43$

Divide. Round answers to the hundredth, if necessary.

64. $46.36 \div 12$

65. $100.32 \div 24$

67. $47.3 \div 0.002$

68. $53.6 \div 0.004$